



APPENDIX A11
UTILITY TECHNICAL MEMORANDUM



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October 2019

By Wood Environment & Infrastructure Solutions, Inc.

INTRODUCTION AND BACKGROUND

The I-70 West Vail Pass Auxiliary Lanes project is located in Eagle and Summit Counties, with the eastern terminus just east of the Vail Pass Rest Area and the western terminus in the Town of Vail. The project study limits include eastbound (EB) and westbound (WB) I-70 from mile post (MP) 179.5 to MP 191.5. The project location and approximate study area are shown in **Figure 1**.

As part of the initial National Environmental Policy Act (NEPA) analysis, a Tier 1 Environmental Impact Statement (EIS) for the I-70 Mountain Corridor (C-470 to Glenwood Springs) was completed in 2011. This EIS, the *I-70 Mountain Corridor Programmatic Final Environmental Impact Statement* (PEIS), recommended the addition of auxiliary lanes EB and WB on the west side of Vail Pass from MP 180 to MP 190 as part of the Preferred Alternative's Minimum Program of Improvements. The PEIS also identified the potential for an elevated Advanced Guideway System (AGS) for transit along the I-70 corridor, including the West Vail Pass project corridor. A follow-up AGS Feasibility Study in 2014 analyzed potential alignments and costs for an AGS system and determined there were three feasible alignments for future AGS. While AGS is not part of the West Vail Pass Auxiliary Lanes project, the AGS Feasibility Study was used to ensure the project did not preclude the favored alignment of the three, which would be partially within CDOT right-of-way (ROW).

A Tier 2 NEPA analysis is the next step required to move highway improvements forward. The project is following the Colorado Department of Transportation (CDOT) and Federal Highway Administration (FHWA) NEPA process to confirm the needs for improvements to the West Vail Pass, identify a Proposed Action, investigate the anticipated benefits and impacts of the proposed improvements (through an Environmental Assessment), produce conceptual design plans, and make funding, scheduling, and phasing recommendations.

This memorandum describes the existing utilities on West Vail Pass and the potential impacts and mitigation of the Proposed Action and No Action Alternatives.

I-70 FINAL PEIS AND RECORD OF DECISION (TIER 1 ANALYSIS)

Utility impacts and mitigation strategies were not included in the I-70 Final PEIS analysis.

LEGISLATION

The construction of this project will fall under the requirements of 2018 CRS Title 9 Article 1.5. Per CRS 9-1.5-103, the professional engineer designating for a subsurface utility engineering project shall meet or exceed ACSE utility quality level B or its successor utility quality level unless a reasonable rationale by a licensed professional engineer is given for not doing so.

Table 1 on the next page outlines the utility quality levels defined by ASCE-38.



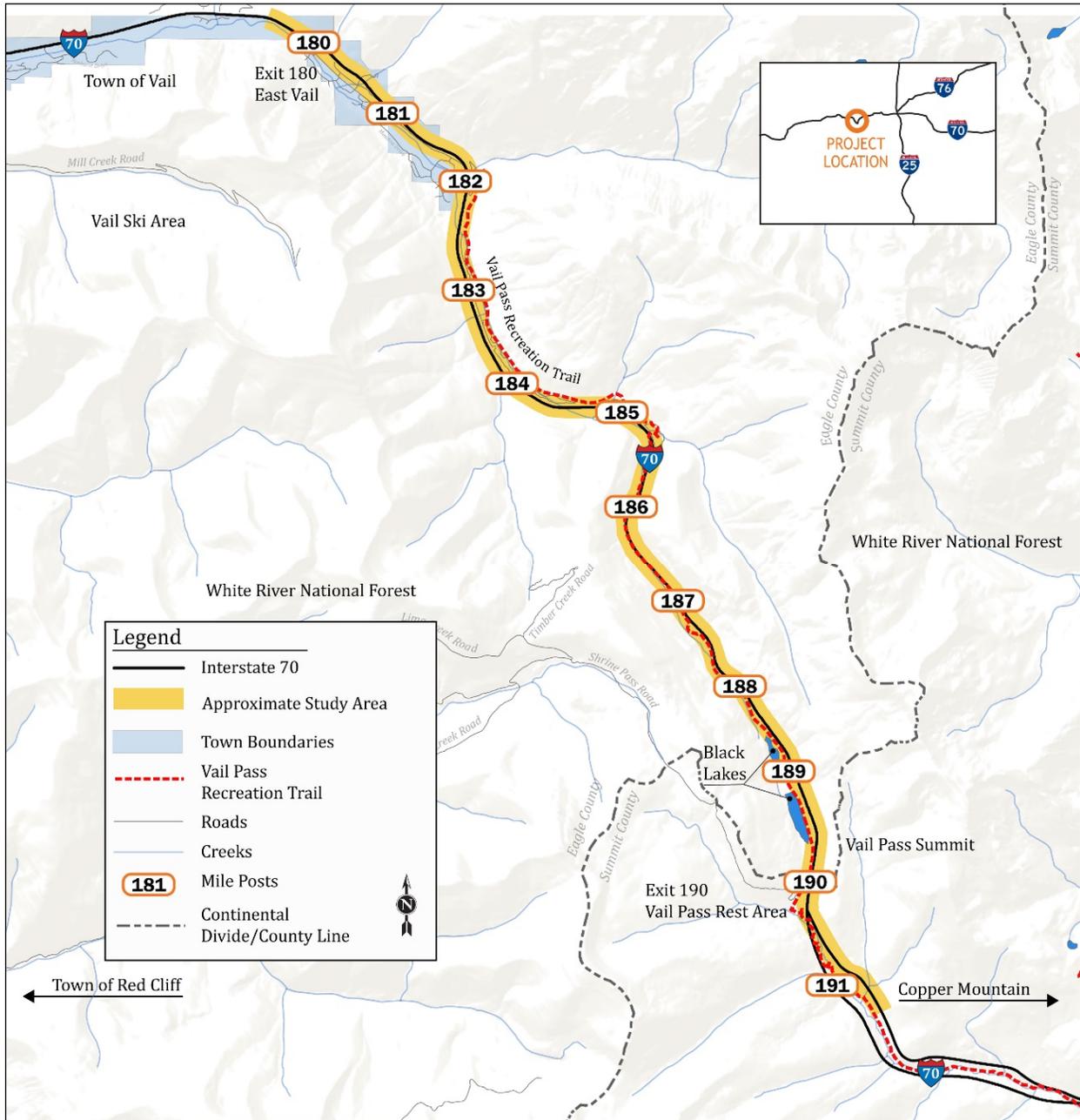
Table 1. ASCE 38 Utility Quality Levels

QL	ASCE 38-02 DESCRIPTION
D	Information derived from existing records or oral recollections
C	Involves surveying and plotting visible above-ground utility features and by using professional judgement in correlating this information to quality level D information
B	Involves the application of appropriate surface geophysical methods to determine the existence and horizontal position of virtually all utilities within the project limits. The information obtained in this manner is surveyed to project control.
A	Precise horizontal and vertical location of utilities obtained by exposure of underground utilities. Provides the type, size, condition, material, and other characteristics of underground utilities.

STUDY AREA

The study area encompasses a 12-mile stretch of I-70 approximately between MP 179.5 and 191.5. The Project location and study area is shown in Error! Reference source not found..

Figure 1. Project Location and Study Area



Source: DEA Project Team



PURPOSE AND NEED

The purpose of the project is to improve safety and operations on EB and WB I-70 on West Vail Pass.

This project is needed to address safety concerns and operational issues due to geometric conditions (steep grades and tight curves) and slow-moving vehicle and passenger vehicle interactions that result in inconsistent and slow travel times along the corridor. The I-70 Mountain Corridor PEIS identified safety and mobility issues on West Vail Pass related to speed differentials due to slow-moving vehicles. (*Mobility is defined as the ability to travel along the I-70 Mountain Corridor safely and efficiently in a reasonable amount of time.*)

- **Safety Concerns:** A high number of crashes occur along the corridor related to speed, tight curves, narrow roadway area, and inclement weather/poor road conditions. Speed differentials between passenger vehicles and slow-moving vehicles cause erratic lane changes and braking maneuvers resulting in crashes and spin outs. Emergency response is hampered by vehicular speeds and lack of roadway width to provide room for emergency vehicles to pass.
- **Operational Issues:** The steep grades and resulting speed differentials causes slow and unreliable travel times through the corridor. Tight curves also cause drivers to slow down. The corridor is frequently closed by vehicle incidents, due to lack of width to maintain a single lane of traffic adjacent to emergency responders, resulting in substantial traffic backups and delays. During winter months, the travel lanes and shoulders are severely impacted by snow accumulation, impacting the overall capacity of the corridor. (*Operations is intended to describe the flow of traffic at desirable speeds given the geometric and prevailing weather conditions.*)

NO ACTION ALTERNATIVE

The No Action Alternative is included as a baseline for comparison to the action alternative. Under the No Action Alternative, only programmed projects that are planned and funded by CDOT or other entities would be completed. Currently, there are no large-scale transportation projects to add safety improvements, operational improvements, vehicular capacity, and multimodal facilities along I-70 within the project area. The No Action Alternative would leave West Vail Pass as it currently is configured and would not provide substantial improvements beyond typical current maintenance (e.g. resurfacing and plowing) activities. The roadway would remain the same, with 2 EB and 2 WB lanes (each 12 feet in width), an inside shoulder typically 4 feet in width, and an outside shoulder typically 10 feet in width.

PROPOSED ACTION ALTERNATIVE

The Proposed Action (**Figure 2**) will add a 12-foot auxiliary lane, both EB and WB, for 10 miles from approximately the East Vail exit (MP 180) to the Vail Pass Rest Area exit (MP 190). Existing lanes will be maintained at 12 feet and the shoulders would be widened to a minimum of 6 feet for inside shoulders and maintained at 10 feet for outside shoulders. All existing curves will be modified as needed to meet current federal design standards.

Intelligent Transportation System (ITS) equipment will also be installed along the I-70 project corridor, consistent with recent study recommendations. Additional variable message signs (VMSs) will be installed at key locations to warn drivers of upcoming curves, grades, and incidents.

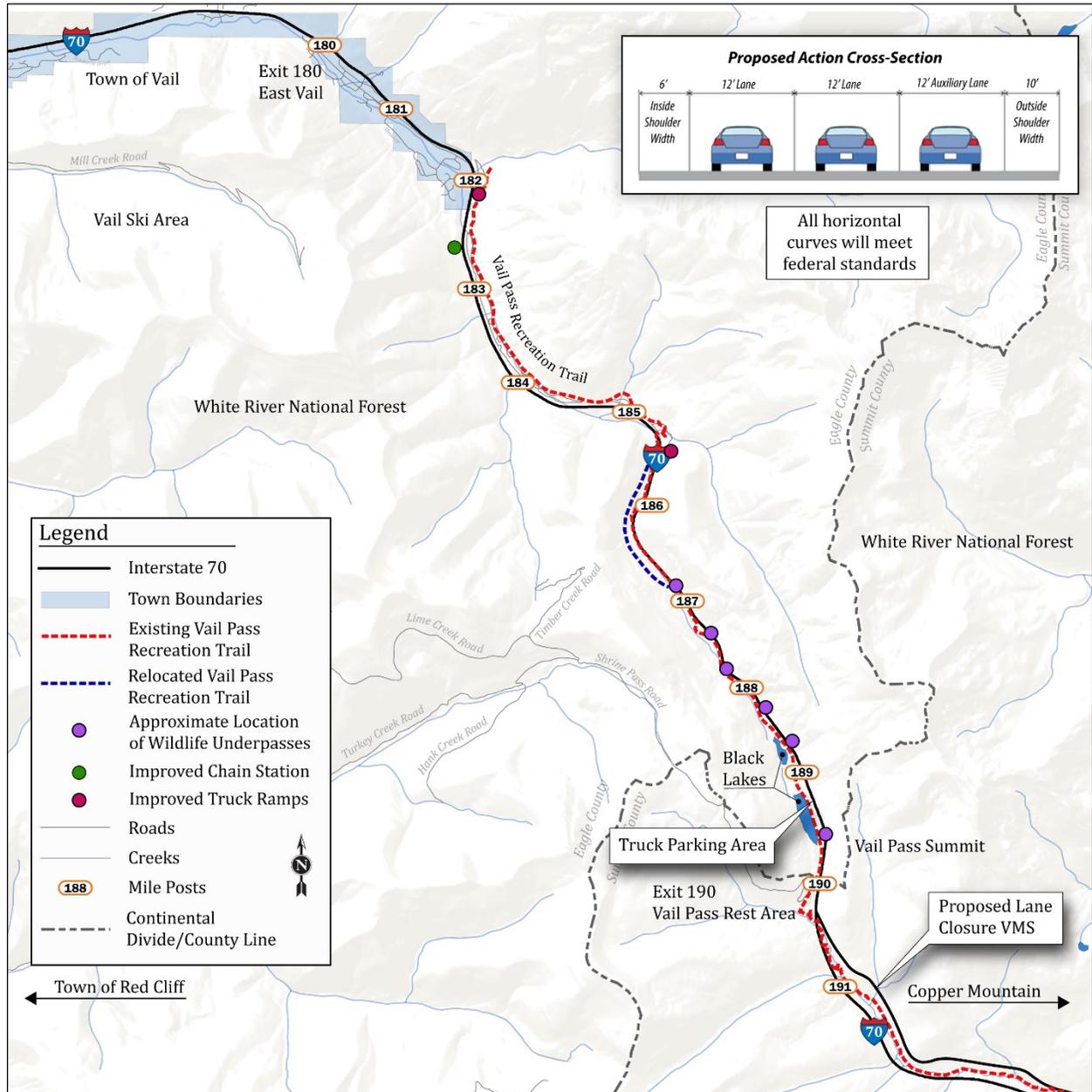


Additional variable speed limit signs will be installed to manage driver speeds to conditions. Automated lane closure signage will be installed approaching the East Vail exit on EB I-70 and approaching the WB I-70 Vail Pass Rest Area exit to quickly and efficiently close lanes when needed.

Additional elements of the Proposed Action include:

- The Vail Pass Recreation Trail will be directly impacted by the addition of the I-70 auxiliary lane and therefore relocated for approximately two miles from MP 185 to MP 187.
- Existing emergency truck ramps, located at approximately MP 182.2 and 185.5, will be upgraded to current design standards.
- Six wildlife underpasses and wildlife fencing will be constructed throughout the corridor.
- Additional capacity will be added to the existing commercial truck parking area at the top of Vail Pass.
- Widened shoulders (minimum of eight feet of additional width beyond the 10' shoulder) at multiple locations to accommodate emergency pull-offs, emergency truck parking, and staging for tow trucks.
- Improved median emergency turnaround locations to accommodate emergency and maintenance vehicle turnaround maneuvers.
- Improved chain station located at approximately MP 182.5 with additional parking, signage, lighting, and separation from the I-70 mainline.
- Avalanche protection located at approximately MP 186.

Figure 2. I-70 West Vail Pass Auxiliary Lanes Proposed Action Alternative



Source: DEA Project Team



METHODOLOGY

Much of the information in this technical memo is taken from the West Vail Pass Environmental Assessment that was developed in 2007. At that time, Goodbee and Associates consulted the Utility Notification Center of Colorado (UNCC) database for initial identification of private utility companies and municipalities with facilities in the study area. The identified companies and departments were contacted, and maps or verbal descriptions of the facilities were obtained. Follow-up field reconnaissance and review of topographic maps confirmed the findings and provided additional information.

As part of this 2019 I-70 West Vail Pass Auxiliary Lanes Environmental Assessment, Wood contacted the CDOT Region 3 utility engineer, Chris Williams, and received a Microstation drawing of the CDOT fiber optic communications line that was installed in 2007.

EXISTING CONDITIONS

The utilities identified in the study area include cable television facilities, electric transmission and distribution lines, fiber optic lines, gas pipelines, irrigation systems, sanitary and storm sewers, and water lines. The following provides an overview for each type of utility.

CABLE TELEVISION

Comcast provides cable television service to the Town of Vail. There is one buried fiber conduit and several cables in the western portion of the study area.

ELECTRIC

There are two electric power providers in the study area: Holy Cross Energy, which provides service to the Town of Vail, and Xcel Energy, whose service area is east of Vail. Holy Cross Energy has two main feeder lines and numerous smaller distribution lines in the western part of the study area. Xcel Energy's facilities in the study area serve the CDOT Maintenance Yard and Vail Pass Rest Area near the Summit.

TELECOMMUNICATIONS

CenturyLink has buried fiber optic and copper cable lines throughout the study area, including a continuous fiber optic conduit which runs along I-70 the entire length of the study area and services CDOT's variable message signs along I-70. CDOT installed a new fiber conduit along the north side of WB I-70 along the entire length of the study area in 2007.

GAS LINES

Xcel Energy provides natural gas to customers in the study area. All identified gas lines are considered low-pressure and are in the western portion of the study area.

IRRIGATION SYSTEMS

The Town of Vail has a computer-run sprinkler system that irrigates the landscaped areas at the Bighorn Road Interchange. This irrigation system is currently inactive.



SANITARY SEWERS

The Eagle River Water and Sanitation District (ERWSD) owns, operates, and maintains a system of sanitary sewers in the Town of Vail. All identified ERWSD sanitary sewers are in the western portion of the study area. Detailed information regarding sanitary sewers at the Vail Pass Rest Area and CDOT Maintenance Yard is pending.

STORM SEWERS

CDOT has a storm sewer collection system to collect runoff at the Bighorn Road Interchange and carry it to Gore Creek.

WATER LINES

ERWSD provides water to the Town of Vail through a distribution network of water lines located throughout the western portion of the study area. Detailed information regarding water lines near the Vail Pass Rest Area and CDOT Maintenance Yard is pending. **Error! Reference source not found.** lists the utilities in the study area as of August 2019.

Table 1. Utilities within the Study Area

UTILITY OWNER	DESCRIPTION
CDOT	Fiber conduit north of WB I-70
CenturyLink	Buried fiber along north side of WB I-70 to variable message signs on Vail Pass
Comcast	Buried cable in Columbine Drive
Comcast	Buried cable in Fall Line Drive from Bighorn Road to Pitkin Creek Townhomes and Pitkin Creek Meadows
Comcast	Buried cable behind East Vail Townhomes on Main Gore Place
Comcast	Buried cable in Main Gore Drive and Main Gore Circle
Comcast	Buried/overhead cable in Bighorn Road from Fall Line Drive to east end of Streamside Circle, in Streamside Circle to Meadow Drive, across Gore Creek. Intermittent overhead cable from Bridge Road to east of Columbine Drive
Comcast	Buried fiber in North Frontage Road East from west of study area to Bighorn Road, crosses I-70, continues east in Bighorn Road to east end of Streamside Circle, in Streamside Circle to Meadow Drive, south across Gore Creek
ERWSD	Eight-inch sanitary sewer in Bighorn Road from east of Columbine Drive, flows west to sanitary in Lupine Drive
ERWSD	Eight-inch sanitary sewer in Columbine Drive, flows south from north end of Columbine Drive to Spruce Way
ERWSD	Eight-inch vitrified clay pipe (VCP) sanitary sewer across Bighorn Road at Spruce Way and 200 feet in Spruce Way to Streamside Circle
ERWSD	Sanitary sewer across Bighorn Road 250 feet west of Spruce Way (size unknown)
ERWSD	Eight-inch sanitary sewer in Bighorn Road from 1000 feet east of Spruce Way to eight-inch VCP that crosses Bighorn Road at Spruce Way
ERWSD	Sanitary sewer in Bighorn Road, flows northwest from 900 feet east of Bridge Road to Bridge Road (size unknown)
ERWSD	Eight-inch sanitary sewer in Bighorn Road, flows southeast from 150 feet west of Bridge Road to Bridge Road



UTILITY OWNER	DESCRIPTION
ERWSD	Sanitary sewer in Bighorn Road from 1200 feet east of Bridge Road (Gore Creek Park) to Bridge Road, lined near creek (size unknown)
ERWSD	Ten-inch sanitary sewer in Bridge Road, flows southwest from Bighorn Road to across Gore Creek
ERWSD	Sanitary sewer in Lupine Drive from Spruce Drive to across Gore Creek, eight-inch liner
ERWSD	Sanitary sewer in Spruce Drive from east of Columbine Drive to Lupine Drive, eight-inch liner
ERWSD	Sanitary sewer in Spruce Drive from west end of Spruce Drive to Lupine Drive, eight-inch liner
ERWSD	Eight-inch to 12-inch sanitary sewer in Streamside Circle and Columbine Drive south of Bighorn Road from east end of Streamside Circle to Lupine Drive and across Gore Creek
ERWSD	Eight-inch ductile iron pipe (DIP) sanitary sewer on north side of Gore Creek from Black Gore Drive, flowing northwest to eight-inch lined sanitary that crosses Gore Creek 600 feet northwest of Main Gore Drive
ERWSD	Eight-inch sanitary sewer in Main Gore Drive and Main Gore Circle flows south to eight-inch DIP on north side of Gore Creek.
ERWSD	Eight-inch sanitary sewer in Main Gore Place flows northwest and crosses Gore Creek east of Racquet Club condos
ERWSD	Eight-inch lined sanitary sewer crossing Gore Creek 600 feet northwest of Main Gore Drive
ERWSD	Eight-inch VCP sanitary sewer on north side of Gore Creek from 700 feet northwest of Main Gore Drive to 600 feet northwest of Main Gore Drive flows into eight-inch lined sanitary crossing Gore Creek
ERWSD	Sanitary sewer on north side of Gore Creek from behind East Vail townhomes 100 feet to crossing of Gore Creek 600 feet northwest of Main Gore Drive, eight-inch liner
ERWSD	Sanitary sewer in Bighorn Road, flows southwest across I-70 from Fall Line Drive to across Gore Creek (size unknown)
ERWSD	Sanitary sewer in Fall Line Drive, flows to Bighorn Road (size unknown)
ERWSD	Eight-inch DIP water line in Fall Line Drive from Bighorn Road, continues across I-70 for 1700 feet east of Bighorn Road in six-inch then through Pitkin Creek Park Condos in 10-inch DIP to Bighorn Road south of I-70
ERWSD	12-inch DIP water line in Streamside Circle
ERWSD	Four-inch to eight-inch DIP water line in Columbine Drive from north end of Columbine to Lupine Drive, crossing of Gore Creek, crosses I-70 in six-inch DIP
ERWSD	Six-inch DIP water line in Spruce Dr. from Pitkin Creek Park Condos on west to Spruce Way on east
ERWSD	Eight-inch DIP water line from east end of Columbine Drive, across I-70 to Spruce Way and Bighorn Road
ERWSD	Eight-inch DIP water line in Bridge Road south from Bighorn Road to across Gore Creek
ERWSD	Eight-inch to 12-inch DIP water line in Bighorn Road from Fall Line Drive across I-70 to Main Gore Place (Racquet Club Townhomes)
ERWSD	12-inch DIP water line in Main Gore Place, Main Gore Drive, and Main Gore Circle



UTILITY OWNER	DESCRIPTION
ERWSD	10-inch DIP water line in North Frontage Road East from Bighorn Road west to trail near fire hydrant, on trail to hairpin turn in Katsos Ranch Road
Holy Cross Energy	Buried electric from west side of Black Gore Creek across creek from south end of Black Gore Drive for 1300 feet south-southwest to pole on south side of I-70 north of Black Gore Creek crossing under I-70
Holy Cross Energy	Overhead electric 200 feet east of Columbine Drive north from Bighorn Road to Spruce Way
Holy Cross Energy	Buried electric along trail north of North Frontage Road East from Bighorn Road Interchange northwest to west end of study area
Holy Cross Energy	Buried electric 300 feet east of Spruce Way north from Bighorn Road for 200 feet
Holy Cross Energy	Buried electric 600 feet east of Columbine Drive north from Bighorn Road to Spruce Way
Holy Cross Energy	Buried electric along north side of Fall Line Drive from Bighorn Road to Pitkin Creek Meadows – service to Pitkin Creek townhomes and Pitkin Creek Meadows
Holy Cross Energy	Buried electric behind buildings on north side of Spruce Drive from Columbine Drive to 22-30 Spruce Drive
Holy Cross Energy	Buried electric in Bridge Road from Bighorn Road to across Gore Creek
Holy Cross Energy	Buried electric in Columbine Drive
Holy Cross Energy	Buried electric in Meadow Drive south from Streamside Circle
Holy Cross Energy	Buried main feeder line along north side of Bighorn Road from East Vail Interchange to Streamside Circle, crosses to south side of Bighorn Road, continues to Gore Drive (Bighorn Circuit/Apollo Circuit)
Holy Cross Energy	Buried electric on south side of Bighorn Road from Bridge Road to west of Lupine Drive
Holy Cross Energy	Buried electric in Black Gore Drive
Holy Cross Energy	Buried electric in East Vail Townhomes north road only from Main Gore Place and Main Gore Circle
Holy Cross Energy	Buried electric in Main Gore Drive and Main Gore Circle to across Gore Creek
Holy Cross Energy	Buried electric in Prima Court north from Main Gore Place
Holy Cross Energy	Buried electric in Vail Racquet Club Townhouse Drive west from Bighorn Road
Holy Cross Energy	Buried main feeder line crossing I-70 east of Bighorn Road from north side of Fall Line Drive to south side of Bighorn Road (Bighorn Circuit)
Holy Cross Energy	Buried electric crossing diagonally from south of Bighorn Road to north of Frontage Road East on west side of East Vail Interchange
Holy Cross Energy	Buried electric in Streamside Circle and on Bighorn Road between Columbine and west Streamside Circle
CenturyLink	Buried telephone/fiber in Columbine Drive from the north side of Bighorn Road to the north end of Columbine Drive, crosses under I-70
CenturyLink	Buried telephone/fiber on north side of Bighorn Road from Bridge Road to east end of Streamside Circle
CenturyLink	Buried fiber/telephone in Lupine Drive south from south side of Bighorn Road
CenturyLink	Buried telephone/fiber on both sides of Bridge Road south from Bighorn Road
CenturyLink	Buried fiber/telephone in Black Gore Drive



UTILITY OWNER	DESCRIPTION
CenturyLink	Buried fiber/telephone in Main Gore Drive, Main Gore Circle, Main Gore Place, and Prima Court
CenturyLink	Buried fiber/telephone in Bighorn Road from Fall Line Drive across I-70 and on s side of Bighorn Road east to Streamside Circle
CenturyLink	Buried fiber/telephone in North Frontage Road E west from Bighorn Road Interchange and in Fall Line Drive to Pitkin Creek
CenturyLink	Buried fiber/telephone on north side of Bighorn Road from Bridge Road east to Lupine Drive, north in Lupine Drive to Spruce Drive, east in Spruce Drive for 500 feet
CenturyLink	Buried fiber/telephone along bike path from Vail Pass Summit to East Vail
CenturyLink	Buried fiber/telephone on south side of Streamside Circle and east on south side of Bighorn Road to crossing under I-70, then east on south side of I-70 to Black Gore Creek crossing under I-70
Town of Vail	Buried electric and in polyvinyl chloride (PVC) conduit providing power to sprinkler system at Bighorn Road Interchange; Buried water lines also present
Xcel Energy	1 1/4-inch mill wrap (MW) gas line 70 feet south of Bighorn Road from Columbine Drive to 200 feet east
Xcel Energy	1 1/4-inch MW gas line on southeast side of Spruce Way from Bighorn Road to Aspen Lane
Xcel Energy	1 1/4-inch plastic gas line across Bighorn Road at east end of Streamside Circle and in Streamside Circle and on south side of Bighorn Road to Columbine Drive
Xcel Energy	1 1/4-inch plastic gas line crossing Bighorn Road 200 feet west of Bridge Road from three-inch MW on south side of Bighorn Road provides service to The Ledges, runs behind The Ledges
Xcel Energy	1 1/4-inch plastic-two-inch MW gas line in Columbine from 80 feet south of Spruce Drive to north end of Columbine; Two-inch fiberglass in three-inch fiberglass casing under I-70
Xcel Energy	Two-inch MW gas line on south side of Bighorn Road from Lupine Drive to crossing 600 feet west of Bridge Road, ten feet north of south right of way line, extends 200 feet north of Bighorn Road, two-inch fiberglass in six-inch PVC casing under Bighorn Road
Xcel Energy	Two-inch tape wrap (TW) gas line in ten feet easement 100 feet south of Bighorn Road from Columbine Drive to 400 feet west
Xcel Energy	Two-inch to four-inch TW/MW gas line in Columbine Drive from south side of Bighorn Road to Lupine Drive to across Gore Creek
Xcel Energy	Three-inch TW gas line in Spruce Drive and Aspen Lane
Xcel Energy	Four-inch TW gas line across Bighorn Road at Lupine Drive; extends north to Spruce Drive from south side of Bighorn Road
Xcel Energy	1 1/4 -inch plastic gas line in ten-inch easement behind Gore Creek Townhomes and Vail East Townhomes (west and south of Main Gore Place)
Xcel Energy	1 1/4-inch plastic/MW gas line in Main Gore Circle and Main Gore Place
Xcel Energy	3/4-inch MW gas line in Main Gore Drive; in two-inch MW under Gore Creek
Xcel Energy	Three-inch MW gas line on south side of Bighorn Road from Lupine Drive to 1200 feet west of Bridge Road, crosses I-70 diagonally to the northwest as six-inch MW to North Frontage Road East, continues west beyond study area



IMPACTS

NO ACTION ALTERNATIVE

As described above, the No Action Alternative would leave West Vail Pass as it currently is configured and would not provide substantial improvements to the roadway beyond current maintenance activities. The safety and mobility issues caused by steep grades, tight curves, and narrow shoulders on the existing roadway would not be addressed. No impacts to utilities would result from this alternative.

PROPOSED ACTION ALTERNATIVE

Most of the utilities identified are in East Vail, from MP 179.9 to MP 181.3, south of I-70. In this area, the Proposed Action design holds the south edge of pavement and widens to the north. This minimizes impacts to utilities in East Vail. The utilities that cross under I-70 along Columbine Drive will likely be impacted if the existing concrete box culvert is reconstructed or modified. There is an ERWSD line north of I-70 from MP 180.45 to 180.55 that crosses under I-70 at the bridges at MP 180.55 that may be impacted by the Proposed Action.

The CDOT and Qwest fiber optic lines along I-70 will be impacted at various locations. The electric line serving the CDOT maintenance facility at the top of Vail Pass may be impacted. The location and extents of the impacts will depend on the final design.

The cost of relocating publicly owned facilities or private facilities within a dedicated easement may be the responsibility of CDOT.

MITIGATION MEASURES AND BEST MANAGEMENT STRATEGIES

In 1996, the FHWA commissioned Purdue University to study the cost savings from four states' departments of transportation that routinely utilize utility quality levels while producing contract drawings. A total of \$4.62 in savings for every \$1.00 spend on subsurface utility engineering (SUE) was quantified.

SUE yields the highest return on investment when it is done early in the design process, because the design can potentially be adjusted to reduce impacts to utilities and risks associated with utilities. Therefore, a SUE provider should designate all the utilities in the project area as a first step in the design process. Having a complete and accurate representation of all the existing utilities will help CDOT and the design team to make informed decisions about impacts to utilities.



Table 2. Resource Mitigation Measures

CONTEXT			
The main types of utilities present in the corridor include, but are not limited to:			
<ul style="list-style-type: none"> • Water line • Gas line • Electric line • Telephone 		<ul style="list-style-type: none"> • Fiber optic line • Storm • Sanitary sewer line • Cable line 	
IMPACT TYPE	NO ACTION ALTERNATIVES	PROPOSED ACTION ALTERNATIVE	MITIGATION
Existing Utilities	<p><u>Permanent Impacts:</u> None</p>	<p><u>Permanent Impacts:</u></p> <ul style="list-style-type: none"> • Utilities may need to be relocated or adjusted to accommodate the roadway construction. • If widening occurs to the north, it may impact the CDOT fiber that was installed in 2007. • Relocation of the Vail Pass Recreation Trail would impact the utilities that run along it. <p><u>Temporary Impacts:</u> Potential for temporary loss of utility service during construction.</p>	<p><u>Permanent</u></p> <ul style="list-style-type: none"> • Coordinate with CDOT Utilities Unit regarding required permits and clearances during final design. • A qualified SUE provider will designate the utilities early in the preliminary design process. • Where conflicts are identified, relocations or adjustments will be coordinated with the affected utility owners. Advance notice will be provided to allow delivery of uninterrupted utility service during construction. • During final design, CDOT will determine the need to establish a utility corridor. <p><u>Temporary</u></p> <ul style="list-style-type: none"> • Coordinate utility relocation with utility companies during final design to minimize service interruptions and to inform utility users as part of the Public Information Outreach campaign during construction.



PERMITS

CDOT will issue a Utility Permit for Relocation.

The owners of privately-owned utilities are responsible to acquire the necessary permits to relocate their facilities that are in CDOT ROW, and they may need a permit with the USFS to relocate within the USFS easement



REFERENCES

CEQ, 1997. "Environmental Justice: Guidance under the National Environmental Policy Act." Council on Environmental Quality (CEQ). December 10, 1997. Accessed January 2017.

(https://www.epa.gov/sites/production/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf)

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Purdue University Study. "Cost Savings on Highway Projects Utilizing Subsurface Utility Engineering." December 1999. Accessed July 2019.

(<https://www.fhwa.dot.gov/programadmin/pus.cfm>)

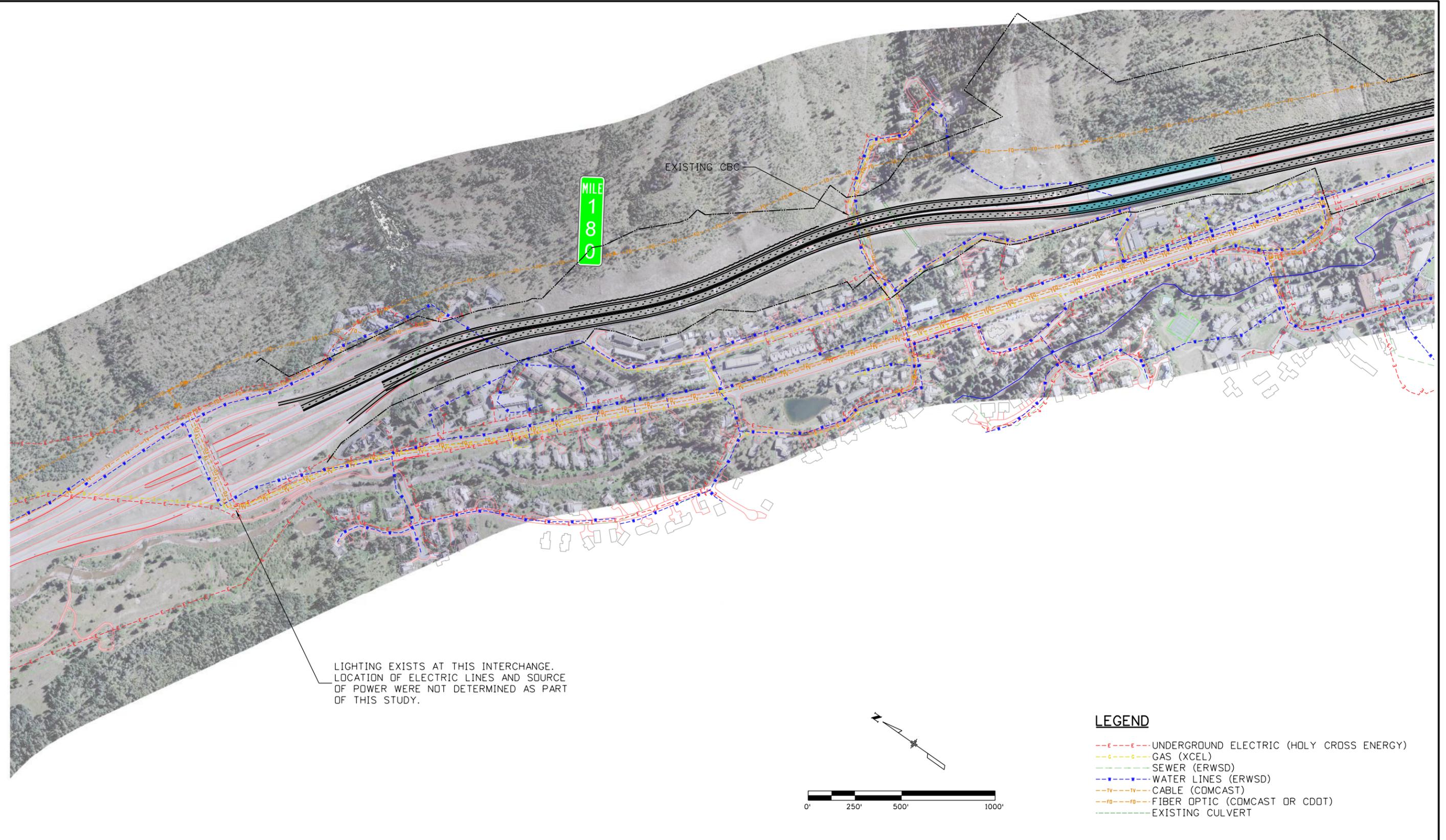
United States Department of Transportation, Federal Highway Administration, 2019. Subsurface Utility Engineering Website: (<https://www.fhwa.dot.gov/programadmin/sueindex.cfm>)



APPENDIX A

**UTILITY MAPPING BY GOODBEE AND ASSOCIATES
TAKEN FROM THE
2007 WEST VAIL PASS DRAFT ENVIRONMENTAL ASSESSMENT**

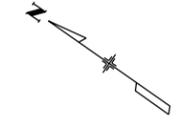
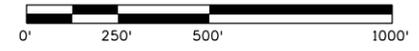
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LIGHTING EXISTS AT THIS INTERCHANGE.
LOCATION OF ELECTRIC LINES AND SOURCE
OF POWER WERE NOT DETERMINED AS PART
OF THIS STUDY.

LEGEND

- - - - - UNDERGROUND ELECTRIC (HOLY CROSS ENERGY)
- - - - - GAS (XCEL)
- - - - - SEWER (ERWSD)
- - - - - WATER LINES (ERWSD)
- - - - - CABLE (COMCAST)
- - - - - FIBER OPTIC (COMCAST OR CDDT)
- - - - - EXISTING CULVERT



Print Date: 10/3/2019	
File Name: 21685_UTIL_500scalePlan01.dgn	
Horiz. Scale: 1:500	Vert. Scale: As Noted
Unit Information	
wood.	Colorado Center Tower 2 2000 S. Colorado Blvd Suite 2-1000 Denver, CO 80222

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation

714 Grand Avenue
P.O. Box 298
Eagle, CO 81631
Phone: 970-328-6385 FAX: 970-328-2368

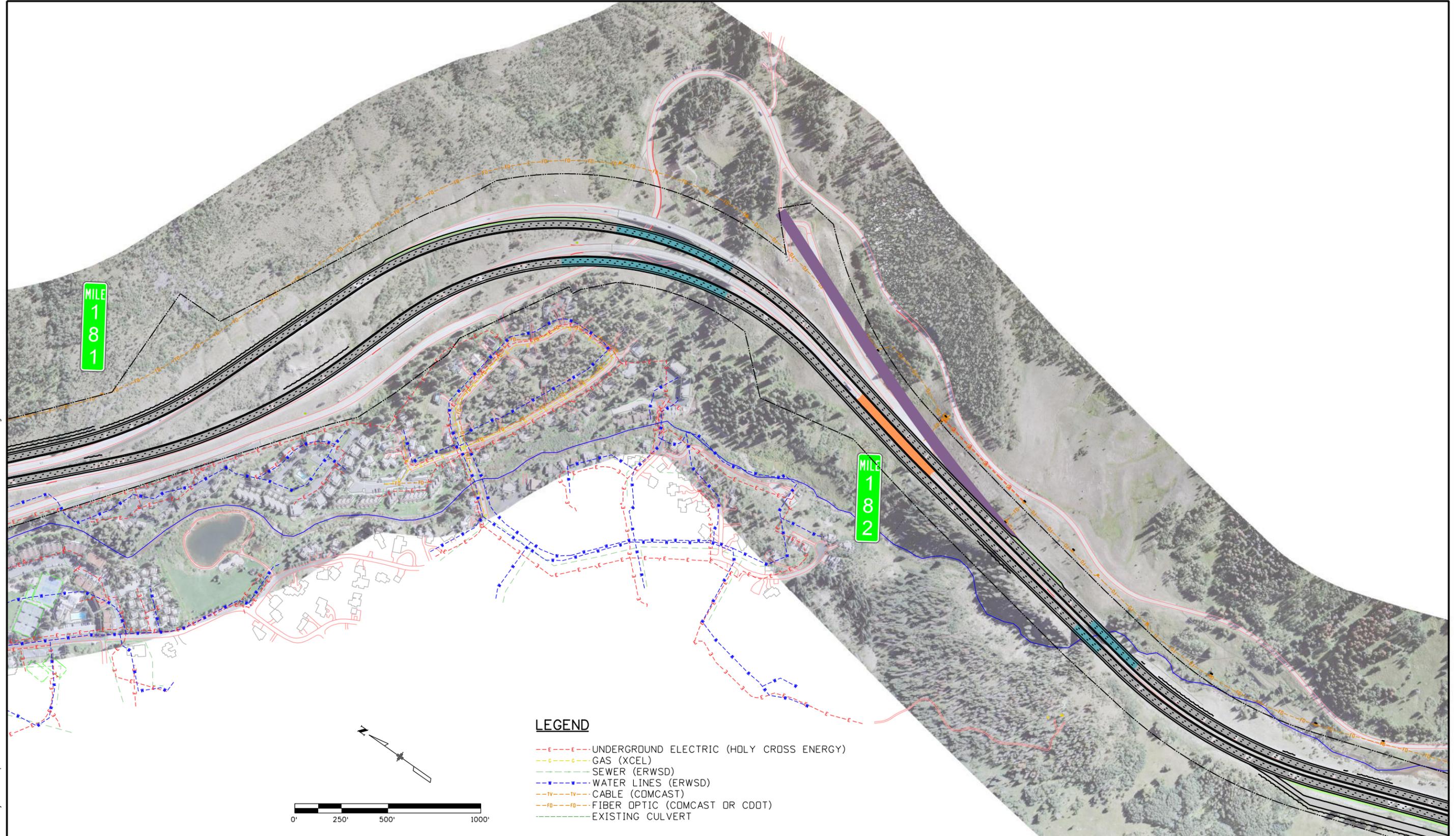
Region 3 **KB**

As Constructed
No Revisions:
Revised:
Void:

I-70 WEST VAIL PASS ENVIRONMENTAL ASSESSMENT EXISTING UTILITIES			
Designer:	JJW	Structure Numbers	
Detailer:	JJW		
Sheet Subset:	UTIL	Subset Sheets:	1 of 7

Project No./Code
NHPP 0701-240
21685
Sheet Number

justin.wierema 11:18:40 AM P:\Project\Transportation\CDOT R3\CDOT R3 VailPass\9.0 CADD\9.06 Utilities\21685_UTIL_500scalePlan02.dgn



LEGEND

- - - - - UNDERGROUND ELECTRIC (HOLY CROSS ENERGY)
- - - - - GAS (XCEL)
- - - - - SEWER (ERWSD)
- - - - - WATER LINES (ERWSD)
- - - - - CABLE (COMCAST)
- - - - - FIBER OPTIC (COMCAST OR CDOT)
- - - - - EXISTING CULVERT



Print Date: 10/3/2019	
File Name: 21685_UTIL_500scalePlan02.dgn	
Horiz. Scale: 1:500	Vert. Scale: As Noted
Unit Information	
wood.	Colorado Center Tower 2 2000 S. Colorado Blvd Suite 2-1000 Denver, CO 80222

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation



714 Grand Avenue
P.O. Box 298
Eagle, CO 81631
Phone: 970-328-6385 FAX: 970-328-2368

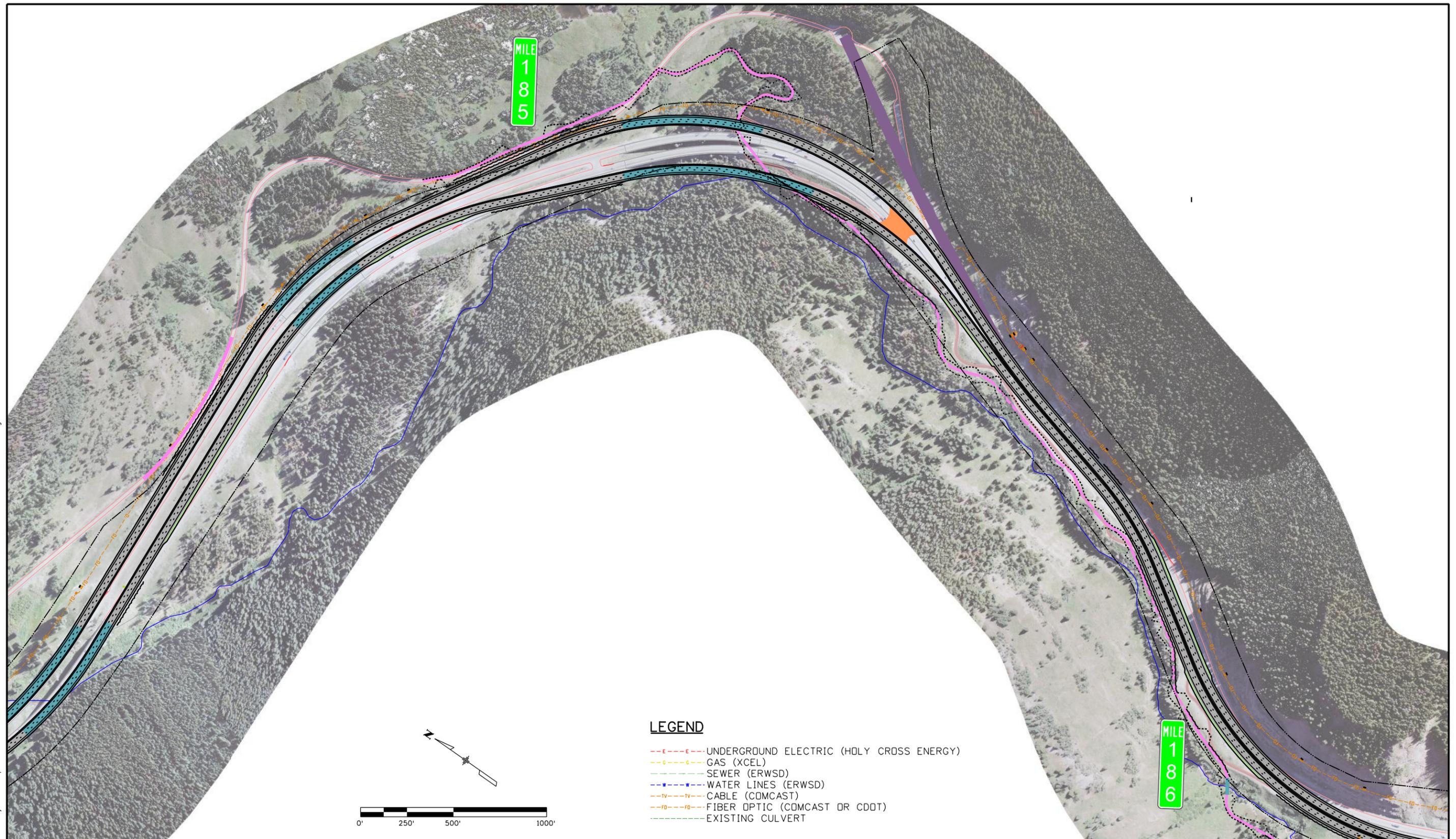
Region 3 **KB**

As Constructed
No Revisions:
Revised:
Void:

I-70 WEST VAIL PASS ENVIRONMENTAL ASSESSMENT EXISTING UTILITIES			
Designer:	JJW	Structure Numbers	
Detailer:	JJW		
Sheet Subset:	UTIL	Subset Sheets:	2 of 7

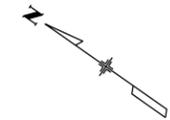
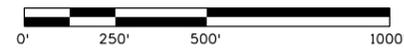
Project No./Code
NHPP 0701-240
21685
Sheet Number

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 justin.wierma 11:19:29 AM



LEGEND

- - - E - - - UNDERGROUND ELECTRIC (HOLY CROSS ENERGY)
- - - G - - - GAS (XCEL)
- - - S - - - SEWER (ERWSD)
- - - W - - - WATER LINES (ERWSD)
- - - TV - - - CABLE (COMCAST)
- - - FO - - - FIBER OPTIC (COMCAST OR CDOT)
- - - - - EXISTING CULVERT



Print Date: 10/3/2019
File Name: 21685_UTIL_500scalePlan04.dgn
Horiz. Scale: 1:500 Vert. Scale: As Noted
Unit Information

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
 714 Grand Avenue
 P.O. Box 298
 Eagle, CO 81631
 Phone: 970-328-6385 FAX: 970-328-2368

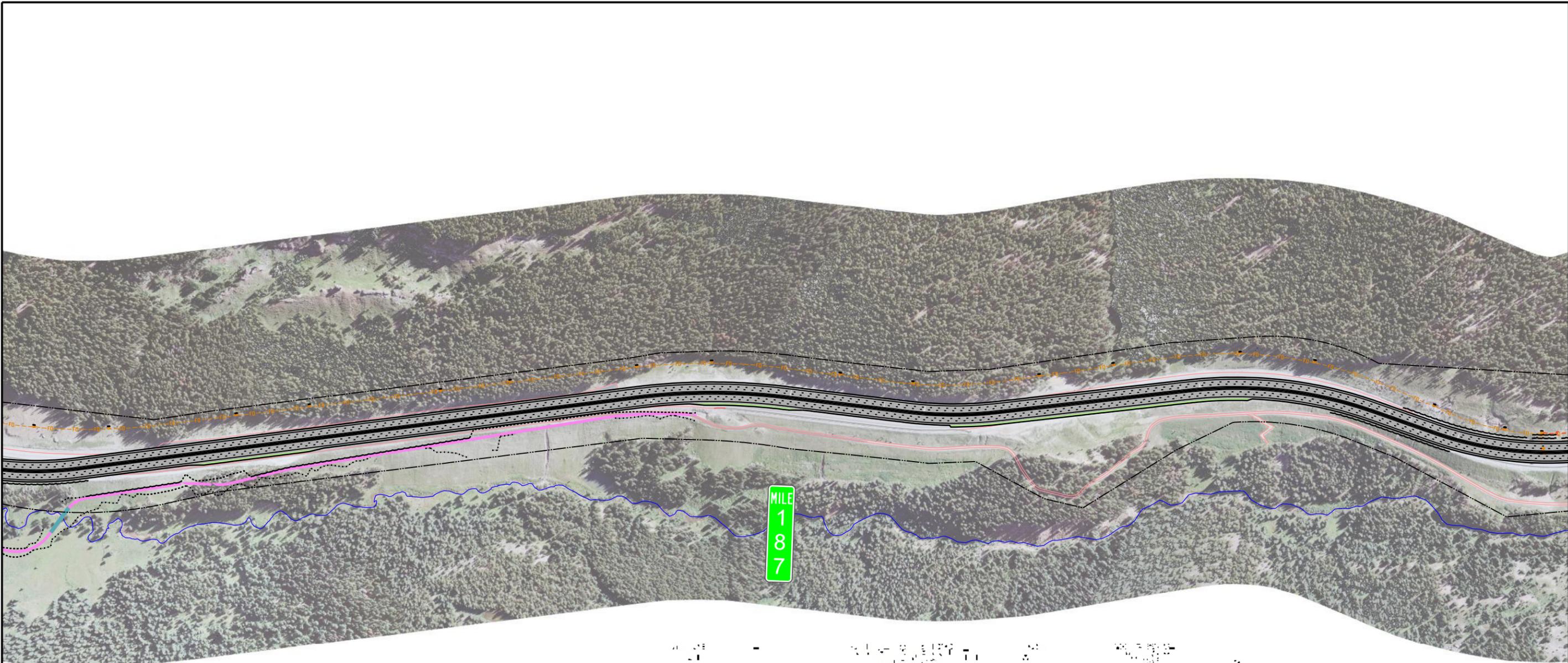
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I-70 WEST VAIL PASS ENVIRONMENTAL ASSESSMENT EXISTING UTILITIES			
Designer:	JJW	Structure Numbers	
Detailer:	JJW		
Sheet Subset:	UTIL	Subset Sheets:	4 of 7

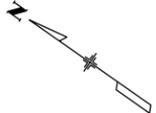
Project No./Code
NHPP 0701-240
21685
Sheet Number

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LEGEND

- UNDERGROUND ELECTRIC (HOLY CROSS ENERGY)
- GAS (XCEL)
- SEWER (ERWSD)
- WATER LINES (ERWSD)
- CABLE (COMCAST)
- FIBER OPTIC (COMCAST OR CDOT)
- EXISTING CULVERT



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File Name: 21685_UTIL_500scalePlan05.dgn	
Horiz. Scale: 1:500	Vert. Scale: As Noted
Unit Information	



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Date:	Comments	Init.

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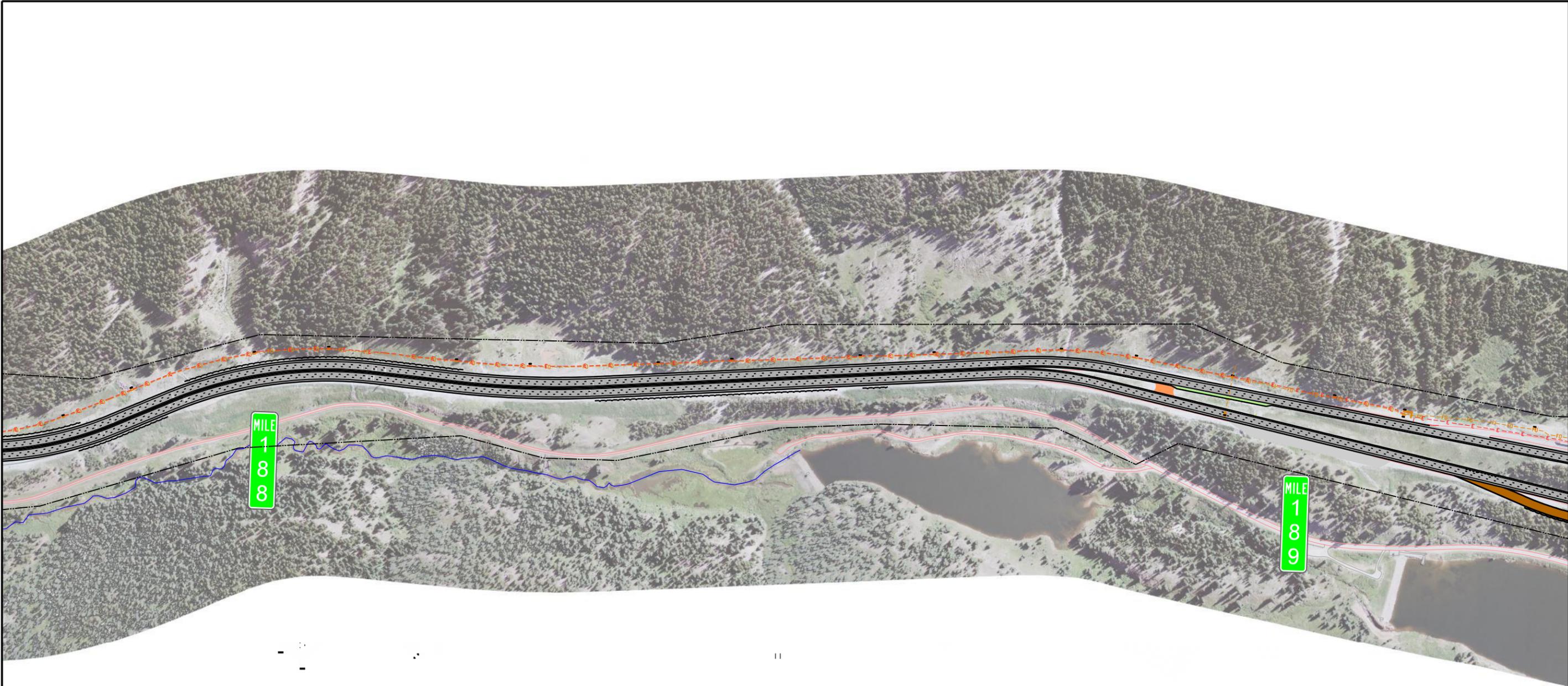
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Detailer:	JJW		
Sheet Subset:	UTIL	Subset Sheets:	5 of 7

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Sheet Number

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LEGEND

- - - - - UNDERGROUND ELECTRIC (HOLY CROSS ENERGY)
- - - - - GAS (XCEL)
- - - - - SEWER (ERWSD)
- - - - - WATER LINES (ERWSD)
- - - - - CABLE (COMCAST)
- - - - - FIBER OPTIC (COMCAST OR CDOT)
- - - - - EXISTING CULVERT



Print Date: 10/3/2019	
File Name: 21685_UTIL_500scalePlan06.dgn	
Horiz. Scale: 1:500	Vert. Scale: As Noted
Unit Information	

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Designer:	JJW	Structure Numbers	
Detailer:	JJW		
Sheet Subset:	UTIL	Subset Sheets:	6 of 7

Project No./Code
NHPP 0701-240
21685
Sheet Number

